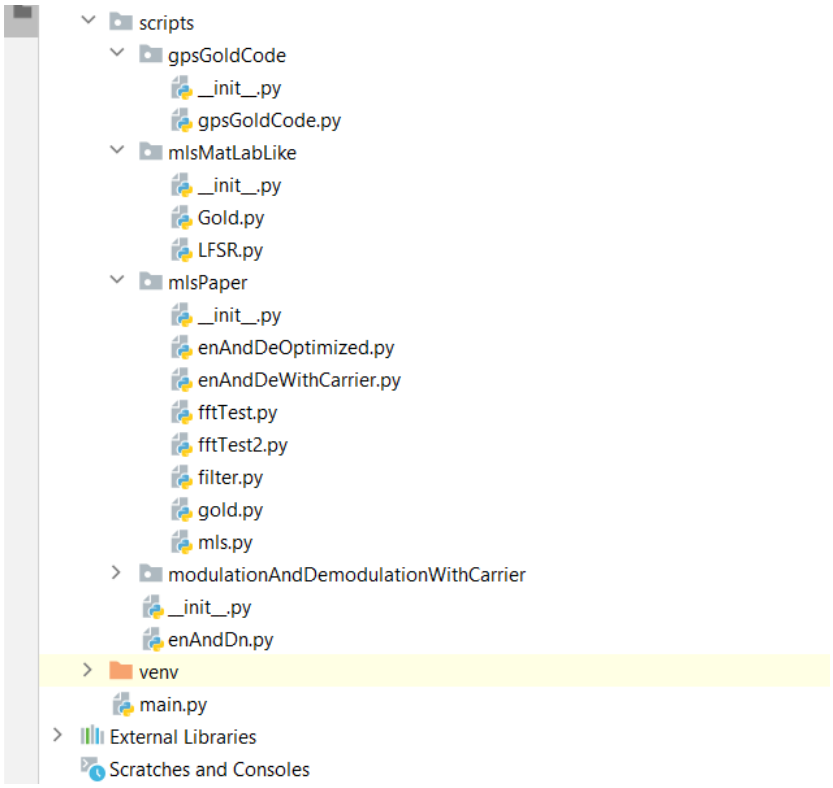
encodingAndDecoding

I have implemented several gold-code generation methods. I merged them in a single project named ***encodingAndDecoding*** in different packages (***gpsGoldCode***, ***mlsMatlabLike***, ***mlsPaper***). From thoses I sticked to one implementation for the progress of the research.



mlsPaper

enAndDeOptimized.py is the implementation of Gold Code generation, modulation and de-modulation.
To run the file execute the command ***python enAndDeOptimized.py*** inside mlsPaper

enAndDeWithCarrier.py is the implementation of Gold Code generation, modulation and de-modulation with carrier and fft.
To run the file execute the command ***python enAndDeWithCarrier.py*** inside mlsPaper

fftTest.py was written to investigate and determine the composite signal's(1 2 0 3 …..) levels for each position after applying the FFT.
To run the file execute the command ***python fftTest.py*** inside mlsPaper

This file was written to get back the composite signal that was sent by the sender. After geting the composite signal the signal need to be despreaded. This operation is not done in this file. For this we need to get back to ***enAndDeOptimized.py*** file with the result we get here.

To run the file execute the command ***python fftTest2.py*** inside mlsPaper.

The rest of files inside this package are the helper files for the above implementation.
So far I have worked with this implementation for modulation and demodulation.

This implementation is followed by the paper

Esmael H Dinan and Bijan Jabbari. 1998. Spreading codes for direct sequence CDMA and wideband CDMA cellular networks. IEEE communications magazine 36, 9 (1998), 48–54

mlsMatLabLike

Gold.py was written to Generate gold code only. This implementation is like mathlab goldcode generation. Therefore, it followed the theory of gold code as described in Matlab documentation for goldCode generation block.
https://www.mathworks.com/help/comm/ref/goldsequencegenerator.html

To run the file execute the command ***python Gold.py*** inside mlsMatLabLike

gpsGoldCode

This implementation of gold code generation is completely followed the below process. The details of this implementation can be found below link.

https://natronics.github.io/blag/2014/gps-prn/

To run the file execute the command **python gpsGoldCode.py** inside gpsGoldCode

OFDMBasic

This project is implemented to understand the OFDM implementation. The details of this implementation can be found below link

https://dspillustrations.com/pages/posts/misc/python-ofdm-example.html

To run the file execute the command **python OFDM.py**

BPSK

This project is for understanding BPSK with carrier and data
To run the file execute the command **python simulator.py**

NB: For linux type python3 instead of python

Aprat from these I have some python script written to get data from USRP device using python. This script is available in the Lab PC.

The grc files which I used for snow are also available in the Lab PC